REMARKS

Claims 7-12 have been rejected under 35 U.S.C. § 112, second paragraph, for the specific reasons set forth in numbered paragraphs 6 and 7 of the Office Action mailed May 2, 2006. In addition, Claims 7 and 8 have been rejected under 35 U.S.C. § 102(b) as being anticipated by the U.S. Patent to Kobashi et al. Claim 9 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobashi et al. in view of a US. Patent to Bock. Lastly, Claims 10-12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kobashi et al. in view of a U.S. Patent to Hutchins. For the reasons that follow, Applicant traverses these grounds for rejecting Claims 7-12, as amended, over the prior art of record.

Claim 7 has been amended in response to the rejections of Claim 7 under 35 U.S.C. § 112. Applicant believes he has addressed all the § 112 issues raised in the Office Action mailed May 2, 2006.

In response to the rejections of the claims under 35 U.S.C. § 102(b), and 35 U.S.C. § 103(a), please find below Applicant's comments.

The Examiner has rejected Claims 7-8 as being anticipated by Kobashi et al. based upon the argument that Kobashi discloses a linear actuator with a step motor 9, an actuator portion with a rotatable member (valve shaft 20) having screw threads 29, a linear displacement bolt 40 that is part of a rotor 21 supported by bearings 43, 44, and a coil spring between the casing of the actuator and a valve head 35, whereby the threaded portion has an angle to allow rotation of the rotatable member where the rotor is rotated by the motor portion and the rotatable member is reversible. It is further argued that the valve shaft is reversible and would inherently have the structure where tan (α) is greater than the friction coefficient between the bolt and rotatable

member. The Examiner further argues that Kobashi discloses a threadable portion with at least two threads.

It appears that the Examiner has mistakenly identified the valve shaft 20 of Kobashi as a rotatable member and the bolt 40 as a linear displacement member, whereas in fact the bolt 40 is part of the rotor and is therefore rotatable and the shaft 20 with the threaded portion 26 moves linearly and is not rotatable (*cf.* col. 4, lines 10-13).

Applicant is also of the opinion that the Examiner's reading of Kobashi is incorrect for the following additional reasons.

Most importantly, Kobashi does not teach a threaded bolt with tan (α) greater than the friction coefficient μ between the threaded bolt and rotatable member. To the ordinarily skilled person, the meaning of "reversible" in a linear actuator comprising a rotatable screw member and a linearly movable bolt means that torque applied to the rotatable member causes axial movable member will cause rotation of the rotatable member. This is not only the meaning understood by the ordinarily skilled person, but also the interpretation of this term from the specification (see page 2, line 30, to page 3, line 2). This meaning is also inherent in the failsafe function of the linear actuator by means of a coil spring exerting an axial force on the translatable member when the motor fails.

Moreover, the reversibility is ensured by the relationship tan (α) greater than μ, which is clearly not disclosed in Kobashi.

The purpose of the coil spring 39 in Kobashi is simply to apply a biasing force on the valve shaft in order to take up a play in the screw nut system and avoid backlash and chattering (see col. 10, lines 44-53, and also Fukaya et al., col. 2, lines 37-41).

In Bock, the spring has a similar function and also provides a biasing force that aids the motor in moving the shaft in the valve closing position in order to compensate for a differential pressure that tends to oppose the closing valve movement (see col. 1, lines 9-24, and lines 45-50).

In all of the three aforementioned references, the screw nut system is not reversible in the sense that the screw thread does not have an inclination such that tan (α) is greater than the coefficient of friction μ. The Examiner has not shown any passage in the prior art that discloses this feature, and the fact that the motor turns in one sense or in the opposite sense thus translating the bolt does not lead to the conclusion that tan (α) is greater than μ, as asserted by the Examiner. On the contrary, most thread and bolt systems are not reversible and tan (α) is smaller than μ, as is the case for these prior documents which do not seek reversibility and that have no discussion of any failsafe function.

As concerns the features of Claim 8, none of the prior art discloses multiple threads, contrary to the Examiner's assertion. Normal thread and bolt systems of linear actuator have a single thread on the bolt (and a corresponding single thread on the nut), there is no disclosure whatsoever in any of the prior art documents that the bolt and corresponding nut have multiple threads. Multiple threads are advantageous in the invention since the angle of the individual threads is increases without increasing the contact pressure between the threads of the bolt and the screw.

Dependent claims 9 to 12 describe further advantageous feature of the linear actuator and should therefore also be patentable. In this regarding, Applicant has not found any disclosure in the prior art that teaches the characteristics of Claims 11 and 12, in particular the force fitting of

the cover into a matching cavity of the partition wall and the axial abutment via elastic means of the body portion against the partition wall.

The Examiner has also not explicitly indicated where these features are in fact disclosed in the prior art.

Concerning the remaining prior art, in particular Conner and Akkerman, Applicant believes these are not pertinent to the invention since they disclose linear actuators with a ball screw mechanism in which balls circulate in helical ball races of the nut and bolt system, whereas the invention according to Claim 7 is directed to a threaded portion of a rotatable member matching a threaded portion of a linear displacement bolt.

For all these foregoing reasons, Applicant respectfully requests entry of the foregoing proposed amendments to the specification and to the claims, and that allowance of Claims 7-12, as amended, over all the prior art of record.

Respectfully submitted,

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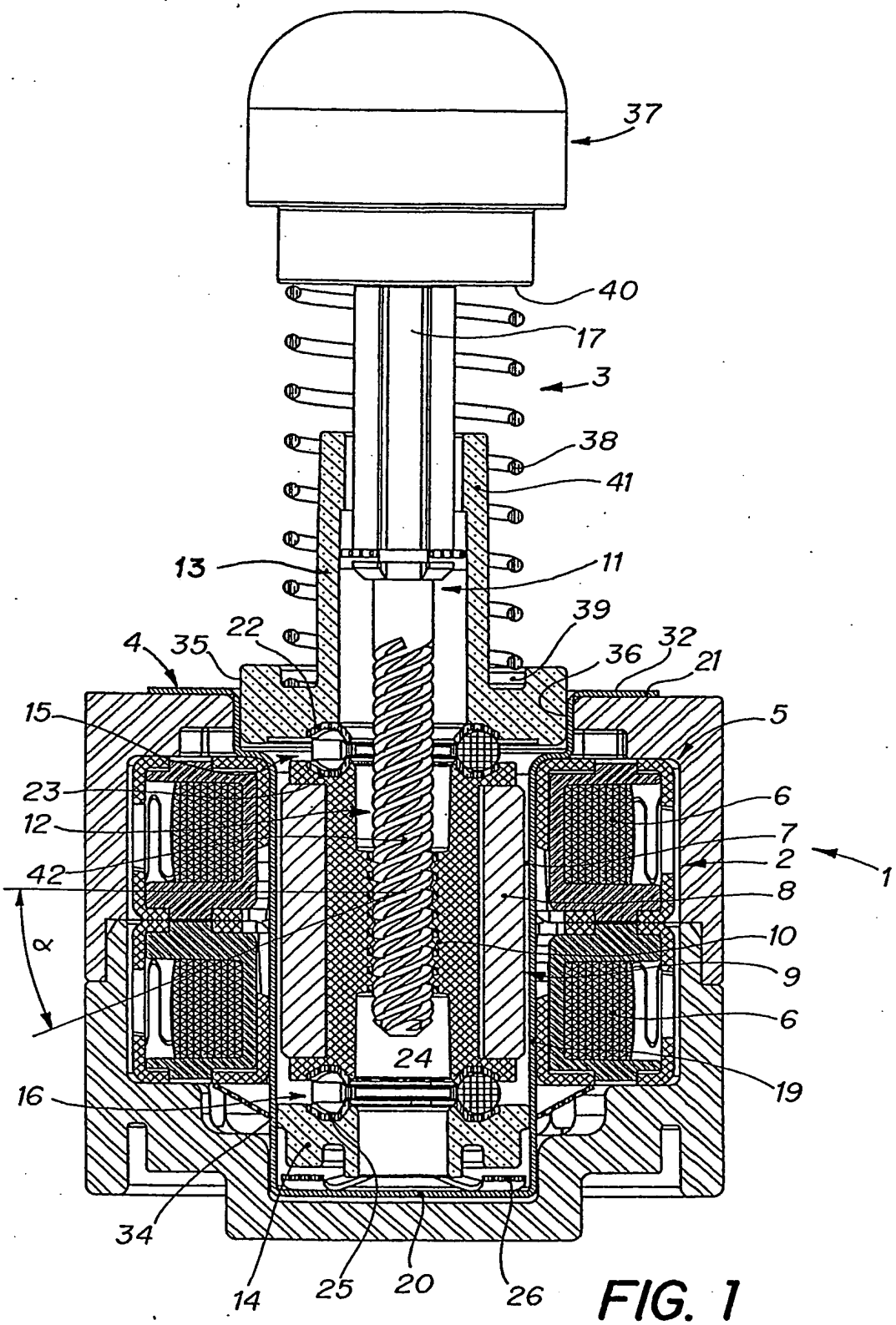

FIG. 1